

Work Order ID 154411***154411***

Page 1

Monday, December 12, 2016 3:22:34 PM

Item ID: D119-796-141

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 12/12/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 12/19/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

DAS

21

Date: DEC 12 2016

Tooling:

Date:

Run Start

NR1

QC:

9-89

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D119-796-141

H

110

Document Control

0.00

110

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile and create labels as per PPP D119-796-141 chg 004

N/A

120

Packaging

0.00

120

Packaging

Memo

0.00

Packaging

TW 16-12-19

130

BENDING MACHINE - CROSSTUBES

0.01

130

CNC Bend 2

Memo

0.45

CNC Alpha 160 Bender

Bend tube as per Dwg D119-796-141 using CNC bender program

TW 16-12-19

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Cross tube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																							
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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140 QC15- Crosstube Dimensional Check

0.00

140

QC

Memo

0.00

Quality Control

⊕

16-12-19

DAS

9

9-89

145

0.00

145

Crosstubes

Memo

0.14

Crosstubes

1- CUT TUBE AT HEIGHT ON FAI SHEET

2- VERFY HEIGHT: 21.625
BY QC15 LEVEL INSPECTOR: [Signature]

3- DEBURR CUT SURFACE

16-12-20

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Work Order ID 154411

Monday, December 12, 2016 3:22:34 PM

154411

Page 3

Item ID: D119-796-141

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 12/12/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 12/19/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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150

0.00

150

Crosstubes

Crosstubes

Memo

0.64

***** ENSURE PROPER JIG POSITIONING *****

***** ENSURE PROPER JIG POSITIONING *****

1-DRILL TUBE AS PER DWG USING DT10087

2- DRILL RIVET HOLES USING DT8787 FWD

3- DEBURR AND C'SINK RIVET HOLES AS PER DWG

4- FLIP TUBE, REPEAT STEP 2 AND 3

5- SCRIBE PART# AND BATCH# USING VIBRATING STYLUS ON INSIDE
OF CUFF AS PER DWG D119-796-141DPZ
DAS
47
9-89

17-01-04

Work Order ID 154411***154411***

Page 4

Monday, December 12, 2016 3:22:34 PM

Item ID: D119-796-141 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: FWD Crosstube Installation without Step (no hardware)
Start Date: 12/12/2016 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 12/19/2016 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

160

0.00

160

HandFXtube

Hand Finishing Crosstubes

Memo

0.04

1- INSPECT AND REMOVE ALL MARKS FROM TUBE WITHIN LIMITS
ON DWG D119-796-141

IMMEDIATELY AFTER GRINDING

2- PRESSURE WASH X-TUBE INSIDE AND OUT

3- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT AS PER QSI005.

4- Verify grinding marks By: _____

DAS
47
9-89

172 17-01-05

175

0.00

175

QC

Quality Control

QC7-Inspect Chemical Conversion Coat

Memo

0.00

DAS
47
9-89

1 17-01-05

Work Order ID 154411***154411***

Page 5

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Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180

Outsource process - NDT per QSI038 4.1

0.00

180

Outsource2

Memo

20.00

Outsource process - NDT

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Liquid Penetrant Inspection as per QSI 038Or

Issue P/O: 348106 LPI as per ASTM 1417

Level 2 Attach copy of NDT results to work order

1 JAN 10 2017

DAS
13
9-89

190

Packaging

0.00

190

Packaging

Memo

0.00

Packaging

Ensure copy of NDT results attached to work order.

1X SP17-01-10.

200

QC5- Inspect part completeness to step on W/O

0.00

200

QC

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Inspect for damage & ensure results are as per Dwg D119-796-141

1 DAS
38
9-89

JAN 10 2017

Monday, December 12, 2016 3:22:34 PM

Page 6

NS1

Stop ***NS2***

Reference:

Stop ***NR2***

Insp. Stamp

DAS
41

9-89

17-1-15

Finish Time: 8:00

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Page 7

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Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

QC14- Inspect Spray Paint

0.00

240

QC

Quality Control

Memo

0.00

***VERIFY BY EB

BATCH # TO MATCH W/O

154411***VERIFY BY EB

PART # TO MATCH

W/O 15441112-01-16

154411

Page 8

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 12/12/2016 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 12/19/2016 **Req'd Qty:** 1.00 ***1***

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Run Start *NR1*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

**Insp.
Stamp**

0.00

242

Crosstubes

Crosstubes

Memo

0.18

Assemble as per dwg D119-796-141 and Qsi 015

1- Abrade mating surfaces with Scotch Brite 7447 and clean with Dupont 4105s or equivalent as per dwg.

2- Install D5152-041 with proseal 890 on concave surface, 0.100" MIN thick as per dwg using DT10089 (identified right and left)

****MAINTAIN CLAMPING PRESSURE ON FOR MIN 72HRS****

Proseal Batch: 136076 41 10-i-16
EXP: 5/17 9.89

PROSEAL CURE TIME 72 HOURS:

Start: 17-1-16
Finish: 17-1-19

3- Install support and shim using proseal 890 per dwg and clamp in position.

Proseal Batch: 136076
EXP: 5/17

PROSEAL CURE TIME 72 HOURS:

Start: 17.01.17
Finish: 17.01.20

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Page 9

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Tool ID

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Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

244

QC5- Inspect part completeness to step on W/O

0.00

244

QC

Quality Control

Memo

***VERIFY BY

154411

***VERIFY BY

W/O 154411

DAS

38

9-89

38

9-89

BATCH # TO MATCH W/O

PART # TO MATCH

0.00

JAN 20 2017

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Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

246

Spray Painting per QSI005 4.2

0.00

246

SprayPaint

Spray Painting

Memo

0.06

VERIFY BY DAS BATCH # TO MATCH W/O154411 41VERIFY BY 9-89 PART # TO MATCHW/O 154411

MASK SCRIBE B# & P# AND VERIFY

1- Remove all non-fixed hardware and clean any excess proseal.

2- Scuff tube with Scotch Brite 7447.

3- Mask cuff per note#2.

4- Prime as per dwg and QSI005

Primer Batch: 136615Start Time: 1000Finish Time: 1100

5- Apply matte clear as per dwg and QSI005

Clear Batch: 135516Start Time: 400Finish Time: 500DAS419-8917-1-24

Work Order ID 154411***154411***

Page 11

Monday, December 12, 2016 3:22:34 PM

Item ID: D119-796-141

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 12/12/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 12/19/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

248

Spray Painting per QSI005 4.2

0.00

248

SprayPaint

Spray Painting

Memo

0.00

***VERIFY BY _____ BATCH # TO MATCH W/O

154411 DAS***VERIFY BY 41 PART # TO MATCHW/O 154411 9-89

MASK SCRIBE B# & P# AND VERIFY

1- Mask underside of tube as per dwg. Mask cuff per note#2.

2- Scuff tube with Scotch Brite 7447

3- Paint outside of crosstube

Paint Batch: 136470Start Time: 8:00Finish Time: 8:30

DAS

41

9-89

17-1-25

Work Order ID 154411***154411***

Page 12

Monday, December 12, 2016 3:22:34 PM

Item ID: D119-796-141**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Stop *NS2*****Item Name:** FWD Crosstube Installation without Step (no hardware)**Start Date:** 12/12/2016 **Start Qty:** 1.00 ***1*****Cust Item ID:****Required Date:** 12/19/2016 **Req'd Qty:** 1.00 ***1*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start*****NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop*****NR2*****Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

250

QC14- Inspect Spray Paint
Crosstubes

0.00

250

QC

Memo***VERIFY BY DAS 38 BATCH # TO MATCH W/O***VERIFY BY DAS 38 PART # TO MATCHW/O 154411

Quality Control

DAS

38

3-89

JAN 30 2017

Work Order ID 154411***154411***

Page 13

Monday, December 12, 2016 3:22:35 PM

Item ID: D119-796-141

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 12/12/2016 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 12/19/2016 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

252

0.00

252

Crosstubes

Crosstubes

Memo

0.00

1- Re-install non fixed hardware per dwg

Torque all clamps to 80-100 IN-LBS.

2- Apply a filet-seal of proseal 890 around supports.

Allow proseal to dry before inspecting.

Proseal 890 Batch: 136076
EXP: 5/17DAS
419-89
17-1-30

Work Order ID 154411

Monday, December 12, 2016 3:22:35 PM

154411

Page 14

Item ID: D119-796-141

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 12/12/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 12/19/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

260

QC5- Inspect part completeness to step on W/O

0.00

260

QC

Memo

0.00

Quality Control

***RE-CHECK TORQUE ON CLAMP AFTER PROSEAL HAS CURED AS
PER DWG.******VERIFY BY 154411 DAS 38 BATCH # TO MATCH W/O***VERIFY BY 154411 DAS 38 PART # TO MATCHW/O 154411 9-89

MASK SCRIBE B# & P# AND VERIFY

1DAS
38
9-89

JAN 30 2017

290

Packaging

0.00

290

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D119-796-141

On w/o 151981

1DAS
41
9-89

17-1-30

Work Order ID 154411

Monday, December 12, 2016 3:22:35 PM

154411

Page 15

Item ID: D119-796-141**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Stop*****NS2*****Item Name:** FWD Crosstube Installation without Step (no hardware)**Start Date:** 12/12/2016 **Start Qty:** 1.00 ***1*****Cust Item ID:****Required Date:** 12/19/2016 **Req'd Qty:** 1.00 ***1*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start*****NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop*****NR2*****Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

300

QC21- Final Inspection - Work Order Release

0.00

300

QC

Memo

0.02

Quality Control

17/01/30 
mf
17-1-30

Picklist Print

Monday, December 12, 2016 3:22:39 PM

Page 1

Work Order ID: 154411

154411

Parent Item: D119-796-141

D119-796-141

Parent Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 12/12/2016

Required Date: 12/19/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 14.09.03 NEW ISSUE DD VERF:JLM IPP
REV:B 14.10.15 AS PER REV.B DD VERF:JLM IPP REV:C
14.11.19 AS PER REV.C DD VERF:JLM IPP REV:D 14.12.12
AS PER REV.pd1 DD VERF:JLM IPP REV:E 15.02.11 AS PER
REV F JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D5305-1		Manufactured	No				Each	8.0000		2			
D5305-1									**	2			
Shim													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				LG056				8					
				140640				1					
				151060				7					
D119-796-141TRN		Manufactured	No				Each	0.0000					
D119-796-141TRN									**				
Crosstube Turning Detail													
D2873-043		Manufactured	No				Each	52.0000		4			
D2873-043									**				
Nut Plate Assembly													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				LG050				52					
				149800				32					
				152401				20					
D5123-3		Manufactured	No				Each	62.0000		4			
D5123-3									**				
Clamp Cushion													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				LG055				62					
				151097				26					
				152482				36					

Picklist Print

Monday, December 12, 2016 3:22:39 PM

Work Order ID: 154411

154411

Parent Item: D119-796-141

D119-796-141

Parent Item Name: FWD Crosstube Installation without Step (no hardware)

Start Date: 12/12/2016

Required Date: 12/19/2016

Start Qty: 1.00

Required Qty: 1.00

D5124-1 Manufactured No

Each 15.0000 2

D5124-1

Fwd Support

DAS
41
9-89

17-1-16

Location

Loc Qty

Loc Code

LG054

15

150103

7

2

152391

8

D5152-041 Manufactured No

Each 3.0000 2

D5152-041

Fwd Post Mount Assembly

DAS
41
9-89

17-1-16

Location

Loc Qty

Loc Code

LG055

3

146011

3

2

CR3212-4-08 Purchased No

Each 93.0000 16

CR3212-4-08

RIVET

DAS
41
9-89

17-1-15

Location

Loc Qty

Loc Code

CCK003

1

m134848

1

LG056

92

m135536

92

16

MS21920-24 Purchased No

Each 57.0000 4

MS21920-24

Clamp

DAS
41
9-89

17-1-16

Location

Loc Qty

Loc Code

FG

2

117998

2

LG050

55

m134502

17

m135544

8

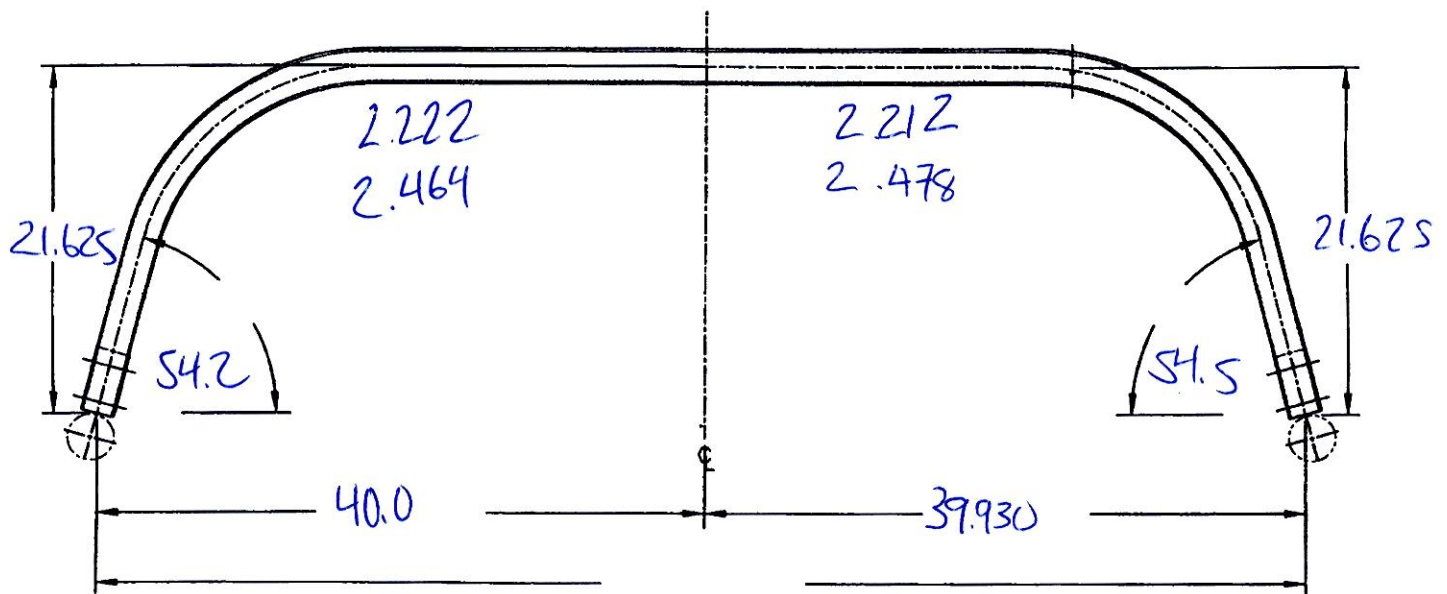
4

m136016

30

DART AEROSPACE LTD		Work Order:	154411
Description: Crosstube Fwd, with Step		Part Number:	D119-796-141
Inspection Dwg: D119-796-141 Rev: H		Page 1 of 1	

Required Dimension	Min	Max
Height	21.490	21.750
1/2 Span	39.820	40.080
Angle	54°	57°
Total Span	79.640	80.160
Bending Passes	8	--
Crushing	--	6.8%



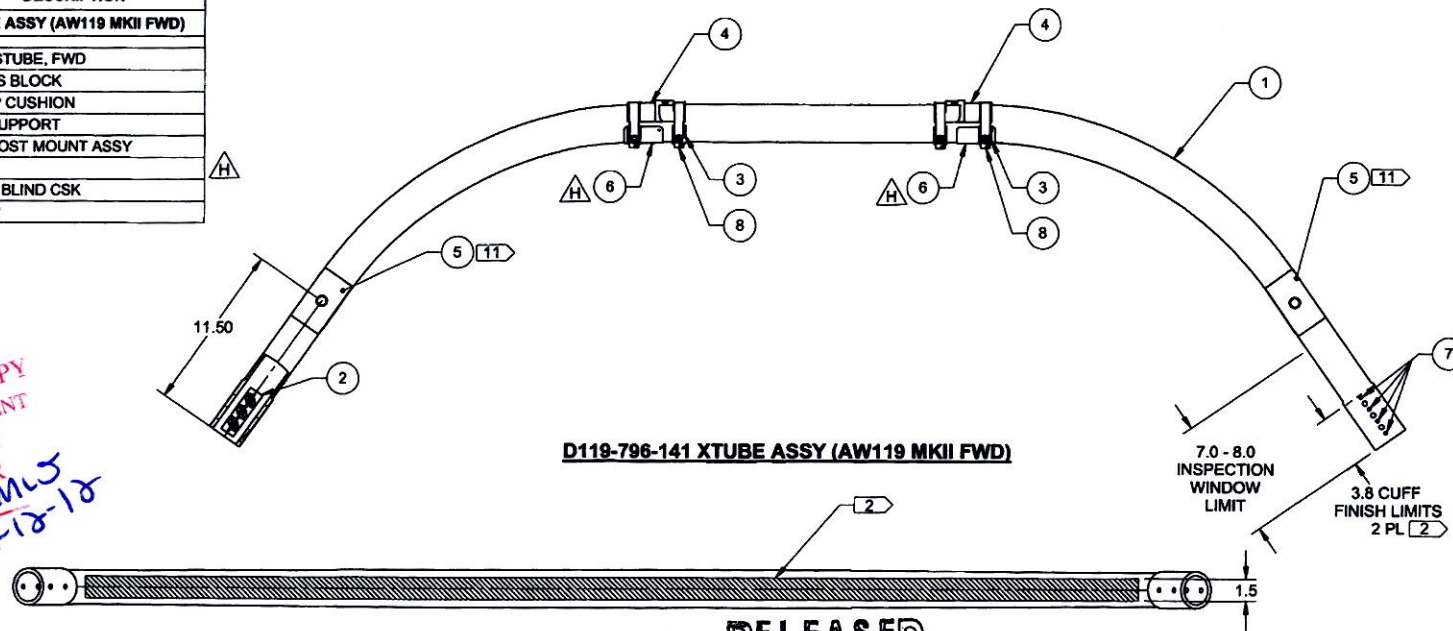
	Side A	Side B
Bending Passes	8	8
Crushing	5.2%	5.7%
Comments		

QC15 Inspection	DAS
Date	9 16-12-19

Rev	Date	Change	Revised by	Approved
A	15.04.14	New Issue	KJ	
B	15.11.12	Dwg Rev updated	KJ	
C	16.01.15	Dwg Rev updated	KJ	47

ITEM	QTY	P/N	DESCRIPTION
	X	D119-796-141	XTUBE ASSY (AW119 MKII FWD)
1	1	D119-796-141BND	CROSSTUBE, FWD
2	4	D2873-043	RADIUS BLOCK
3	4	D5123-3	CLAMP CUSHION
4	2	D5124-1	FWD SUPPORT
5	2	D5152-041	FWD POST MOUNT ASSY
6	2	D5305-1	SHIM
7	16	CR3212-4-08	RIVET, BLIND CSK
8	4	MS21920-24	CLAMP

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 15411 ML3
16-12-18



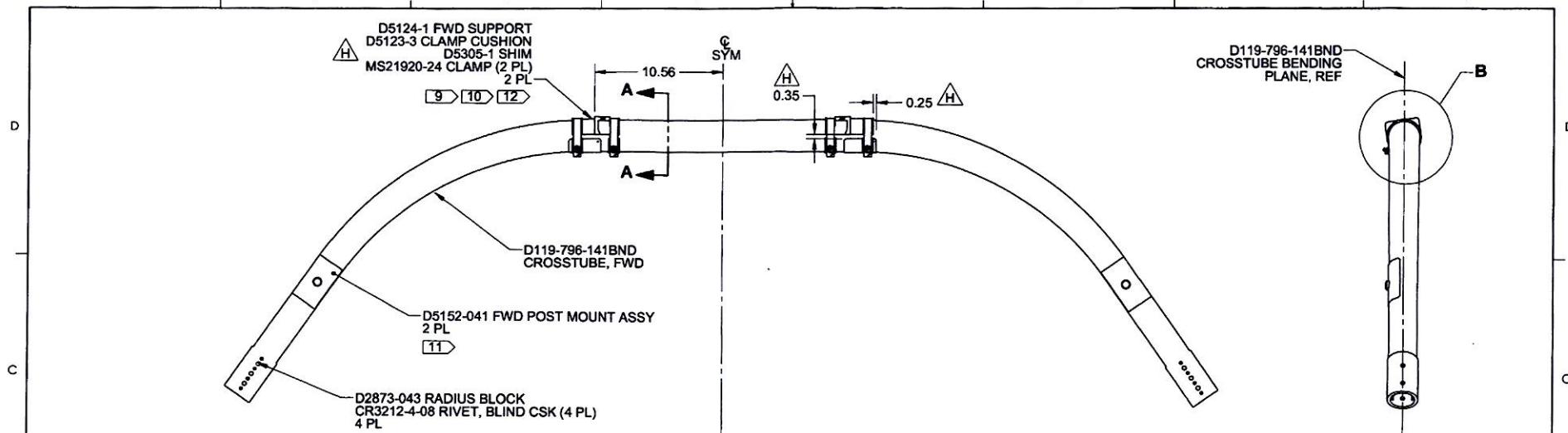
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2015-11-04
ECN 15-642

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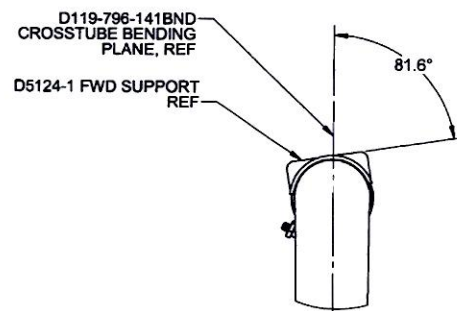
- 1) MATERIAL: N/A
- 2) FINISH: APPLY MATTE CLEAR COAT PER QSI 005 4.2
MASK D5124-1 FWD SUPPORTS, D5305-1 SHIMS AS WELL AS UNDERSIDE OF CROSSTUBE AS SHOWN (B3-1, HATCHED AREA).
PAINT OUTSIDE PER DART QSI 005 4.2 AFTER APPLYING CLEAR COAT
DO NOT APPLY FINISH (PAINT OR CLEAR COAT) TO CUFFS IN LOCATION SHOWN, MASK PRIOR TO FINISHING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-141" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 6.4
- 7) WEIGHT: 18.54 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE.
THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS.
DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 9) PRIOR TO FINISHING, ABRASE MATING SURFACES OF D5124-1 FWD SUPPORTS AND CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'N'WIPE DEGREASER. APPLY A 0.1 MIN THK LAYER OF PROSEAL 890 ON THE INSIDE CONCAVE SURFACE OF THE D5124-1 FWD SUPPORTS AND INSTALL AT AN 8.4° OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL THE MS21920-24 CLAMPS AND D5123-3 CLAMP CUSHIONS WHILE WET.
- 10) TORQUE MS21920 CLAMPS 80 - 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY, THE NUT IS FACING AFT AND HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- 11) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5152-041 WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'N'WIPE DEGREASER. INSTALL D5152-041 WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.1 MIN THK. LOCATE D5152-041 USING TOOL DT10089.
- 12) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5305-1 SHIM WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'N'WIPE DEGREASER. INSTALL D5305-1 SHIM WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.1 MIN THK. USE ADDITIONAL TEMPORARY MS21920-24 CLAMP TO APPLY CLAMPING PRESSURE FOR 72 HOURS.

H	ADD D5305-1 SHIM, D6024-103 WAS D6005-103, D5124-1 NOW INSTALLED ON PRIMER	AP	15.10.13
G	FINISHING ORDER ADJUSTED, CR3212-4-08 WAS -07, CUFF DIA TOLERANCE INCREASED TO +/- 0.005	AP	15.04.24
F	REMOVED PRIME/ PAINT ON CUFFS, 2.516 WAS 2.500 (CB-5)	AP	15.02.03
E	D5152-041 FWD STEP POST ASSY WAS D5150-1 STEP POST, SCOTCH BRITE 7447 RED WAS 180 GRIT SANDPAPER, ANGLE (B7-2) DIMENSIONED FROM NEW DATUM	DB	15.01.15
D	ADD D5150-1 STEP POST (2X), MOVED INSPECTION WINDOW DETAIL TO SHEET 1, MODIFIED NOTES ON SHT 1 & 3	DB	14.11.25
C	CR3212-4-07 RIVETS WERE CR3212-4-09, 7.5 DEG CUFF ANGLE OFFSET REMOVED (SHT 3), CUFF DIAMETER ON D119-796-141TRN REDUCED TO 2.500, ADDED INSPECTION WINDOW (B7-3), ADDED SHT 4	AP	14.10.23
B	ADDED D2873-043 RADIUS BLOCK, CR3212-4-09 RIVETS, ADDED SKIDTUBE REFERENCE FOR LOCATING CUFF HOLES, RE-ORGANIZED NOTES AND REMOVED REDUNDANT INFORMATION	AP	14.09.02
A	NEW ISSUE	AP	14.08.09
REV.	DESCRIPTION	BY	DATE
DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 1 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
DATE	15.10.13	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

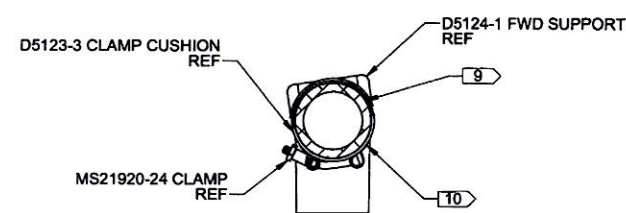
8 7 6 5 4 3 2 1



D119-796-141 XTUBE ASSY (AW119 MKII FWD)



DETAIL B
SCALE 2X



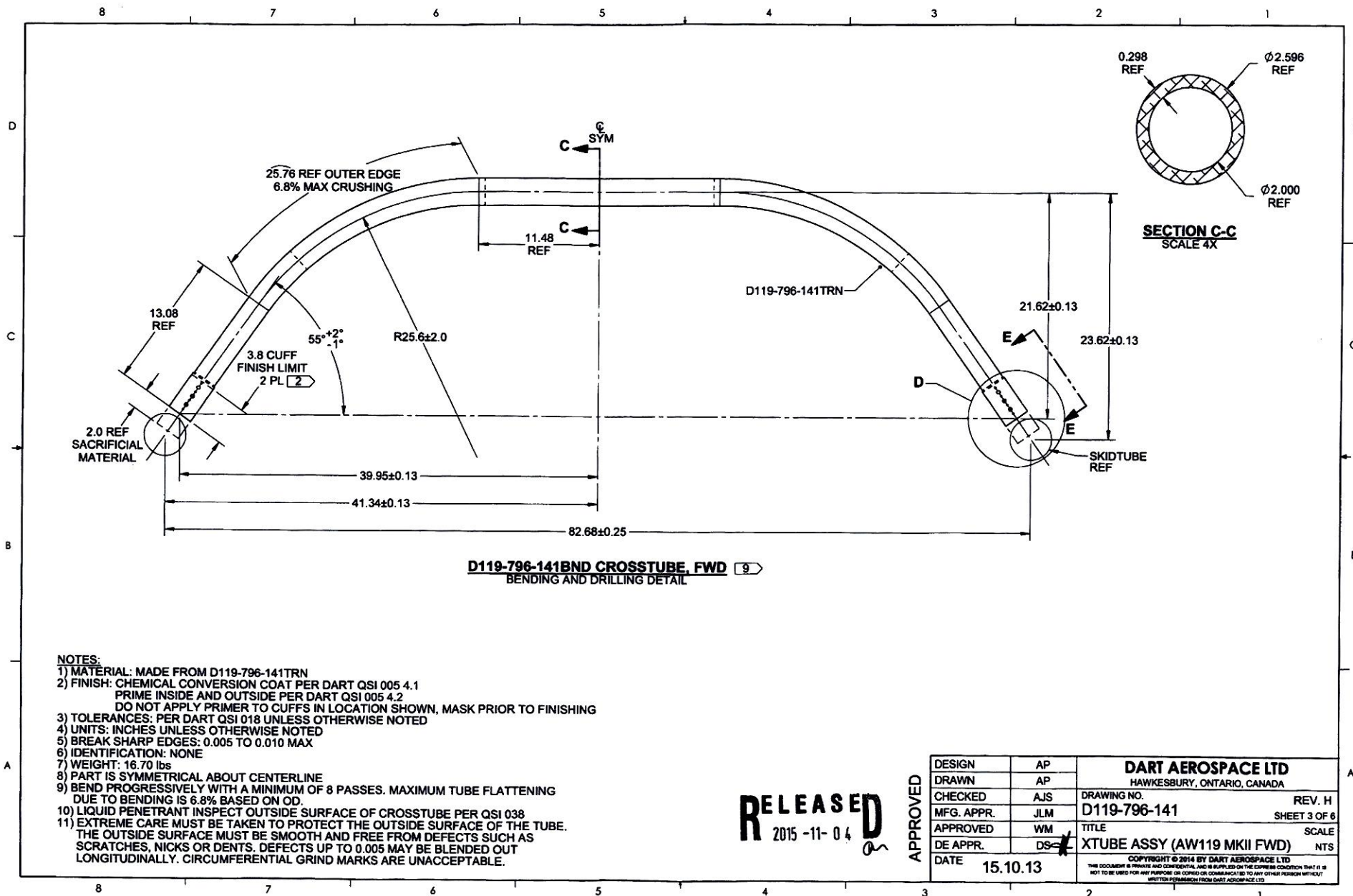
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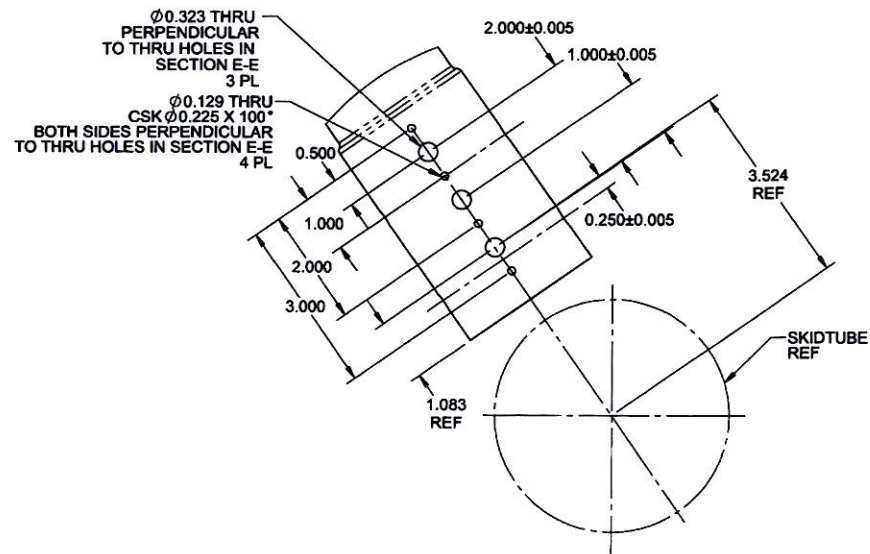
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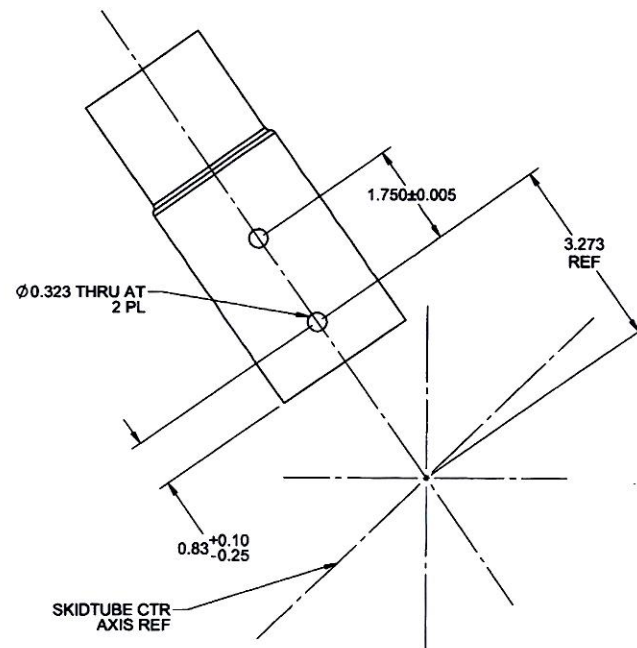
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DRAWN	AP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 2 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
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8 7 6 5 4 3 2 1





VIEW D
SCALE 4X

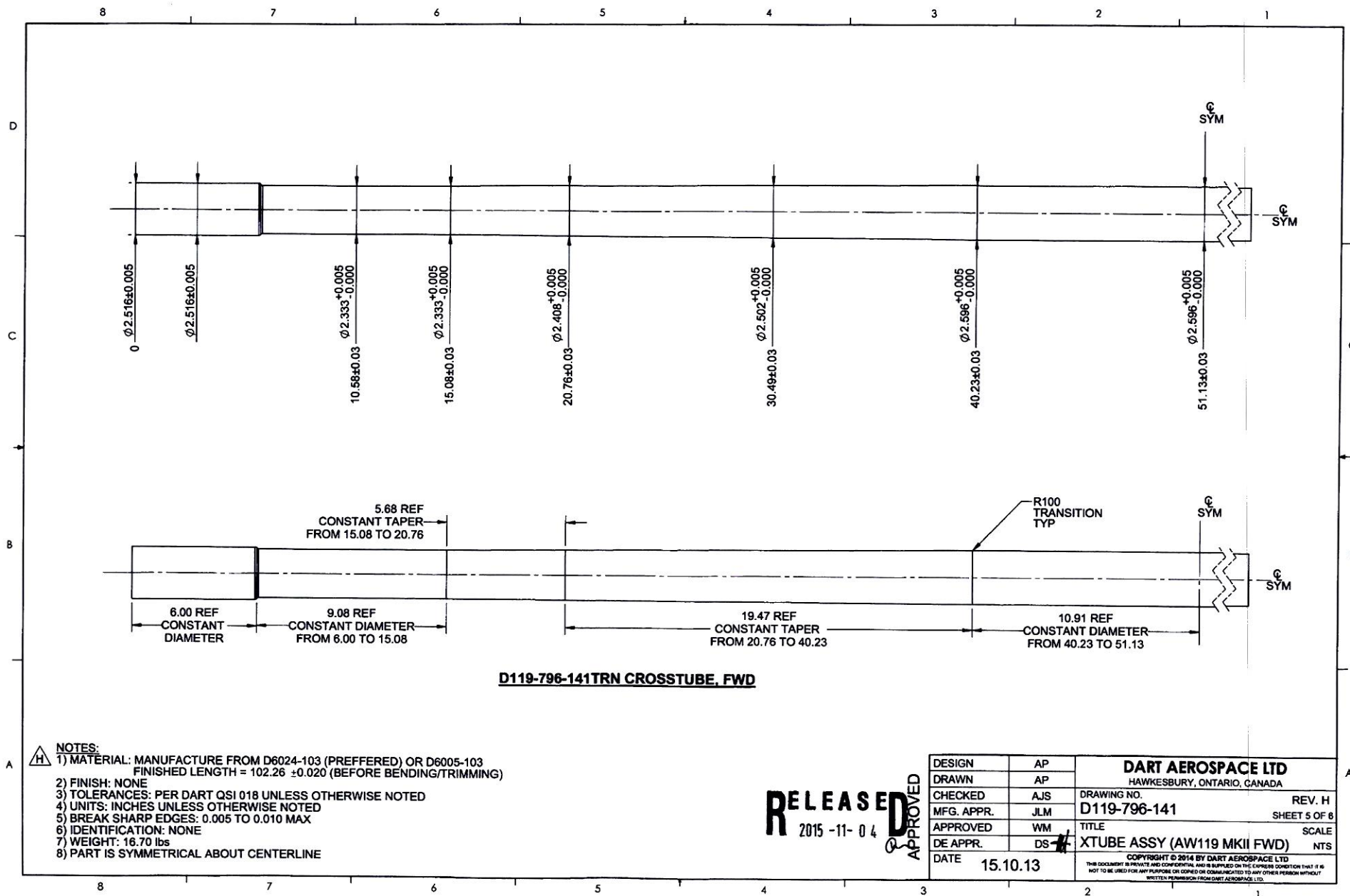


VIEW E-E
SCALE 2X

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2015-11-04

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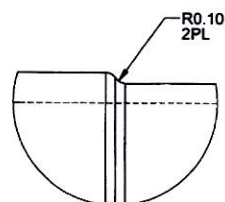
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DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 4 OF 6
APPROVED	WM	TITLE	SCALE
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2015-11-04

DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 5 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
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D119-796-141TRN CROSSTUBE, FWD
 SUPPLEMENTAL VIEW: NOMINAL WALL THICKNESS



DETAIL F
 SCALE 2X

DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 6 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
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RELEASED
 2015-11-04

APPROVED

CHAMFER ID
 AS REQUIRED
 FOR TOOLING

F

SYM

SYM

0.258 REF
 NOMINAL WALL

0.167 REF
 NOMINAL WALL
 10.58±0.03

0.167 REF
 NOMINAL WALL
 15.08±0.03

0.204 REF
 NOMINAL WALL
 20.76±0.03

0.251 REF
 NOMINAL WALL
 30.49±0.03

0.298 REF
 NOMINAL WALL
 40.23±0.03

0.298 REF
 NOMINAL WALL
 51.13±0.03



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO34866**

Purchase Order Date 1/9/2017

PO Print Date 1/10/2017

Page Number 2 of 4

Order From :

VC-SKY001

Ship To : DART AEROSPACE LTD

SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone

905-678-5636

Ship To Contact

Ship To Phone

Ship Via:

Delivered

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

Line Total: \$0.00

3 152307

D119-796-141
CROSSTUBE

1/12/2017

1.00

\$0.00

\$0.00

Yes

1/12/2017

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$0.00

154411

D119-796-141
CROSSTUBE

1/12/2017

1.00

\$0.00

\$0.00

Yes

1/12/2017

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$0.00

5 149580

D119-796-141
CROSSTUBE

1/12/2017

1.00

\$0.00

\$0.00

Yes

1/12/2017

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Note:

1/10/2017



skyservice Work Order Traveler

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO30650	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO34866
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT ON 8 CROSSTUBES AS PER PO34866

4 FWD CROSSTUBES , ITEM ID# D119-796-141 , WORK ORDERS ID# 152307, 154411, 149580, 150394

4 AFT CROSSTUBES , ITEM ID# D119-796-241 , WORK ORDERS ID# 154683, 154681, 154680, 154679

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417M-13 ***NO CRACK FOUND*** PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , EMU. MPO15896, DEV. MPO11715 , UV LIGHT M-20142						JAN 09 2017	
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp	Date:
Name: RATIK MELIKIAN		JAN 09 2017